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ABSTRACT

Noting that (1) current research suggests that technology may contribute to improved instruction in writing but it does not do so automatically, and (2) while teachers may successfully employ computers with their writing students, their choices of methods remain critical, this paper surveys computer approaches and appropriate software for effective writing instruction. These include: prewriting software, composing tools, editing and revising approaches, and instructional software for writing skills. In addition, the paper briefly reviews new areas related to computer technology--desktop publishing, telecommunications, and electronic bulletin boards. The methods presented represent a composite of approaches developed by national leaders in computer writing instruction from the National Council of Teachers of English and the Association for Education in Journalism and Mass Communication. (Author/SKC)

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Going Beyond Word Processing:

A Survey of Computer-based Approaches for Writing Instruction

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ABSTRACT

The rapid introduction of computers into academic writing programs reflects the popular belief that word processing and computers can improve the teaching of writing. Current research suggests that technology may contribute to improved instruction in writing, but it doesn't do so automatically. While teachers may successfully employ computers with their writing students in various ways, their choices of methods remain critical.

Computer approaches and appropriate software for effective writing instruction are surveyed. These include: prewriting software; composing tools; editing and revising approaches; and instructional software for writing skills. In addition, two new areas related to computer technology--desktop publishing and telecommunications and bulletin boards--are briefly reviewed. The methods represent a composite of approaches developed by national leaders in computer writing instruction from the National Council of Teachers of English and the Association for Education in Journalism and Mass Communication.

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Schools and colleges usually begin a computer-based writing program by equipping a writing lab with personal computers and word-processing software. This is the natural and necessary first step.

Learning to write with a word processor often provides productivity gains for writers, particularly in revising. Other computer-based tools may provide further productivity gains for students in learning those skills important to becoming a polished writer. For example, a spelling checker not only is used to correct words in a paper, but also can be used instructionally to help individual students learn words they don't know.

Some writing instructors have gone beyond simple word processing and have harnessed a variety of other software programs to aid writing instruction. Many of these programs have been categorized according to their place in the writing process: prewriting, composing, editing and revising. Still other programs offer instructional reviews of grammar, punctuation, word usage and spelling. Desktop publishing software motivates these writing and learning activities by providing authentic publication outlets for student writing. Telecommunications and computer bulletin boards provide similar motivation and may offer wider audiences for student writing.

This paper will describe these kinds of software along with suggestions for how they may be effectively integrated into writing labs and classrooms. Teacher behaviors in integrating computer-based resources into writing curricula have been shown to be critical to the success of computer-based writing programs.

Prewriting software

Prewriting activities, such as focusing on a topic and organizing beginning ideas, have been made more cognitively explicit by software that leads writers through these "getting-started" activities. Research has shown the importance of teaching writers how to get started and that this is a part of the writing process.

About two dozen different prewriting software packages, or "idea processors," are on the market. Writing labs should be equipped with at least two or three such packages. The cognitive and writing styles of different students and assignments create a need for a variety of idea processors.

For fiction writing, for example, the stream-of-consciousness activity known as "freewriting" might be an appropriate warm-up activity. While most idea processors offer freewriting activities, they differ in some respects. Research Design's "Proteus" and CONDUIT's "Writer's Helper" don't permit users to backspace or erase while freewriting.

One should continue to move forward without interrupting one's flow of ideas until a later stage of prewriting or writing is attempted.

At a later stage of prewriting, or for developing non-fiction ideas, an outlining program such as "ThinkTank" might be helpful. Prompted writing also might be helpful in deciding on an organizational structure or in identifying key ideas. One of "Proteus"' interactive modules simply asks the writer to answer the traditional who, what, where, why and when questions. Another, called "cubing," asks the writer to define, compare, contrast, and argue for or against the topic. Milliken's "The Writing Workshop," which is for elementary and junior high writers, has different start-up prompts for explanatory, persuasive, descriptive, and other types of writing.

"Writer's Helper," which is appropriate for junior high through college, permits writers to edit their own set of prompting questions. This may be the highest level of prewriting cognitive activity -- having students think about appropriate questions that need to be asked regarding the development of their ideas and organization. Few would likely engage in this activity, however, even with idea processors in the writing lab, unless encouraged or required to do so by their writing teachers.

College writing teachers need to know how to use prewriting software effectively. Even writers as young as fourth grade are using prewriting software.

DLM Teaching Resources' "The Writing Adventure" provides an integrated package that contains prewriting help, a word processor, and a style and spelling checker to help with editing and revising. Using colorful graphics and an "adventure game" format, this program takes students into a cave, where they explore. As they explore, they can "take notes" on electronic notecards on the screen. After finishing the adventure, which has more than 200 possible outcomes, the student uses a simple word processor to write a story, easily referring back to notes as needed.

Students who have used packages like this one in elementary school, and who have moved on to other tools in the secondary schools, will expect to have sophisticated tools at their fingertips when they reach college writing classrooms. One package designed for secondary school through adult learning, which is heavy on developing cognitive skills in writing, is Kapstrom's "Writing is Thinking."

Composing

Cognitive skills in writing are put to the test when student writers sit down with a word processor to compose their first drafts. But students and teachers who are using computers merely as "electronic typewriters" are missing some of the power that word processors bring to writing.

Research in English composition suggests that a more productive kind of writing is possible now and should be taught to students.

This new kind of writing marries traditional craftsmanship in using the language with word processing's new capabilities for manipulating text. For lack of a better name, some have called this new form "computer writing." It involves experimenting with text in ways not likely to have been tried previously. For example, a writer can now use search-and-replace strategies to experiment with different points of view. Or one might try a variety of large block moves to experiment with different rhetorical strategies.

New ways are available to examine and edit writing. For example, here's a new and easy way to get a clear look at individual sentence structures: Use the "find" function of your word processor to find periods where sentences end; as each is found, hit the return key. The quick result is a stack of sentences all starting at the left margin. By scanning this display, you can more readily see repetitive beginnings, the variety in sentence lengths, and other structural features. (Note: It may be prudent to do this on a "copy" of the story; you can then use the insights to edit the original without having to reformat it.)

Students need faculty help in developing independent strategies for computer writing that will increase their productivity and performance. Suggestions such as these

are presented in a recent book, "Teaching Writing with a Word Processor, Grades 7-13," published by the ERIC Clearinghouse on Reading and Communication Skills (Available for $5.85 from ERIC, National Council of Teachers of English, 1111 Kenyon Road, Urbana, IL 61801.) It is a short and competent review of both research and practice in this new field of computer-writing education. The authors, Dawn Rodrigues and Raymond Rodrigues, Colorado State University, are leaders in this field with NCTE.

Their advice and the research data have important implications for teachers who may be using the computer and word processing merely as an electronic typewriter. Word processing can bring more writing power to you and your students, but you must have mastery of your word processor to realize this new power. Teachers who spend only one class period to introduce the barest functionality of merely inserting and deleting text are depriving their students of tools that contribute to a new craftsmanship in writing.

Another simple, yet powerful, idea suggested by the Rodrigueses involves using your word processor to create "lesson files." These are simply text files that you create with your word processor that students may use as added learning resources. Students seldom finish in-class assignments at the same time and may welcome having additional learning files on their diskettes.

Lesson files may be used to introduce new concepts that you'll discuss in coming classes, to review or

reinforce other material, or to add variety to your teaching approaches. At a recent workshop at Syracuse University, I demonstrated a lesson file on newspaper feature leads that used the "find" function and keywords for jumping to selected sections of the file from a menu. Such tutorials can be prepared by teachers without any knowledge of computer programming. Furthermore, developing such tutorial lesson files helps teachers gain the mastery of their word processors needed for the skilled teaching of computer writing.

Research suggests that teaching writing with a word processor is different from teaching writing without one. In studying word processing with 10th grade students in Herndon, Va., Gail Womble found early in her research that students revised only at the surface level. As they developed more mastery of their word processor, however, their surface revisions were replaced by more important revision strategies.

Research with advanced university students by Jeanette Harris, Texas Tech University, suggests "word processing does not, in and of itself, encourage student writers to revise more extensively, especially the macrostructure of a text."

In reviewing these and other studies, the Rodrigueses conclude, "Once students have mastered word processing, the word processor appears to facilitate writing." But they also report, "It appears that student abilities to revise well are clearly tied not to whether they use a word

processor per se, but whether they use it fully in their writing and what the role of the writing instructor has been in teaching them to write with the word processor."

They affirm that students learn to revise most effectively "when the instructor is fully present -- teaching methods that the word processor enhances, coaching, and observing the revision in progress."

Cynthia Selfe, Michigan Technological University, has reported some of the computer-writing strategies that she has observed. One student typed key ideas at the top of his file and key terms or vocabulary words at the bottom. As he wrote, he would move to either the top or bottom of the file to collect ideas. Another would write parts of a story in separate files and later merge them electronically. "When students write with word processors," the Rodrigueses say, "teachers are teaching not just writing processes but computer-writing processes."

Editing and Revising

Once a student has completed a draft, impressive software tools are now available to assist with editing and revising. This genre of writing productivity software performs some of the more routine and boring checking routines that teachers have always done. At its simplest, this genre simply checks the spelling of the text against an online dictionary to see which words aren't in the dictionary. Of course, words not in the dictionary may be

correctly spelled, which can frustrate some students. But several products go beyond checking spelling and begin to help increase both the productivity of the writing teacher and the writing students.

One such product used for several years by my writing students at the University of Miami with excellent results is DecisionWare's "RightWriter." My students write on IBM PCs, save their files to disk, and then one by one bring their disks to my PC, where RightWriter is running. After a student types a simple command and waits about 70 seconds, "RightWriter" creates a new file that contains an analysis of the student's writing. Back at their own PCs, the students can then read the analysis on their screens or print it out. Just as the teacher makes comments between lines, this program interweaves commentary such as "Passive voice: 'were made'" or "Sentence has 48 words; too long."

In addition, the analysis provides four scales of quality in the writing: one focuses on the strength of the writing (diminished, for example, by "to be" verbs and passive voice), one on jargon, one on the use of descriptive language, and one on the readability of the work. Of course, words that are not in the dictionary are listed to check for misspelling.

In my classes, students write, get some feedback from "RightWriter," and then immediately rewrite. Obviously, this process has cut down on my time spent marking items such as spelling, simple punctuation, and some structure (especially use of "to be" verbs). This means that I can

spend my time making more meaningful comments about organization, use of detail and example, and so on.

A product similar to "RightWriter" for the Macintosh computer is "MacProof." This program goes beyond some of the features of RightWriter, however, as it highlights "troublesome" words, racist words and sexist words and provides an on-screen help for the writer. For example, if the writer used the word "lady" in a text, "MacProof" would highlight the word, allow the student to go into an online explanation of why in some contexts that is seen as a sexist word, and return the student to the text. It does not change the text for the student, but it does provide easy access to a reference source while the student is revising. To fully benefit from "MacProof," each student needs a copy.

Kinko's Academic Courseware Exchange's "PROSE" (Prompted Revision of Student Essays), also for the Macintosh, allows a teacher to add comment markers and "please revise" markers to a student text for review and revision by the student. "Guided revision" steps from marker to marker displaying comment windows at the bottom of the screen and forcing the student to make a change wherever the teacher placed a "please revise" marker. If the student needs help with a revision, the program provides lessons and sample problems "on-the-fly."

While readability is not the major focus of writing instruction, it can be an instructive concept to use with many writing students. For students who have problems

thinking about audience, or those who are used to writing jargon-filled papers in scientific disciplines, readability analyses can help them focus on communicating ideas more simply. When students are writing for an audience of their peers, who are good readers, they can expect to use more complicated sentences and more complex words. But much of the writing that college graduates do in the work place will be communications with those who barely finished high school. Reading experts suggest that an average high school graduate will be "comfortable" reading materials written at grade 10 difficulty. In fact, most newspapers and mass circulation magazines are well below that level. Students need to have help in phrasing their thoughts in ways that communicate ideas easily.

While some editing and revising tools come with a readability score or scores as part of the package, there are also many "stand-alone" readability programs. Two that are available through my Oates Clearinghouse (a not-for-profit distribution center at P.O. Box 248127, Coral Gables, FL 33124) are "Four Readability Formulas," by Wayne Danielson, and "Read-Able," which is used by Knight-Ridder newspapers.

The key item to look for in readability programs is ease of use. Does the student have to retype the text to get a readability score? Most of the IBM PC-based readability programs have been created so that they can read textfiles generated by almost any word processing

program. Most of the Apple-based readability programs require a retyping of the material because they can use only textfiles created with their own word processors.

Instructional Software for Writing Skills

In addition to the writing productivity tools that have been described, teachers will occasionally want to provide remedial or tutorial instructional software to help writing students. Several packages are available, typically from middle school to remedial college level. Two illustrative ones will be mentioned here -- one for the Apple II family of computers and another for IBM-compatibles.

Electronic Courseware's "English Series" is a six-diskette set for Apple II computers. Its grammar lessons include instruction and drills on irregular verbs, helping verbs, verb conjugation, verb tenses, transformations, passive and active verbs, participles, demonstratives, prepositions, conjunctions and more. Student scores may be automatically recorded and monitored, and the lessons may be adjusted for variable difficulty levels.

Educulture's "Practical Composition Packages" run on IBM-compatibles and on Apple II and Macintosh. Five modules cover such things as word usage, structuring logical and clear sentences, and sentence unity and phrasing. A drill-and-practice approach is used with several different question-and-answer formats. Summaries

and review are included, as well as automatic record-keeping for monitoring by instructors.

Desktop Publishing

While computer magazines and even the popular press have been touting the revolution of desktop publishing in industry, some simple versions of this concept have begun appearing even in elementary schools. Many elementary schools are now producing a school newspaper with "The Newsroom," which contains a simple word processor, a file of graphic images that can be edited, and the means to produce several different sizes and styles of type. Others are using "The Print Shop" and perhaps just columns of output from a word processor to create a school or principal newsletter. Such "publishing" activities are invaluable in motivating student writing.

The most widely known desktop publishing software, "PageMaker" by Aldus, is being used in several high school journalism programs in Dade County, Fla., and elsewhere. This sophisticated tool allows a variety of choices in typesize and style, formatting options, and layouts. Students who have come from a high school program with such sophisticated production tools will not be happy to use electric typewriters in college writing classes; their expectations have been raised by their experiences.

Telecommunications and Computer Bulletin Boards

Telecommunications also can become both a stimulus to writing and a means for sharing writing. Students at Hialeah High School in Miami have "electronic pen pals" at a private high school in Colorado. While the students have never met their correspondents "in the flesh," they are learning a great deal about how life is different in these two places: one a public school, one private; one in the subtropics, one in the mountains; one often in the news, one barely ever heard of.

In addition, both elementary and secondary school students are learning to use computer bulletin board systems (BBS). The Dade County Public Schools has run its own BBS since 1984. The bulletin board has 10 different message centers. One message center is especially for teachers with information pertinent to them--contests, field trip opportunities, new openings, etc. Three of the message centers are targeted for elementary school students. The board provides a free, somewhat monitored communication experience for students and teachers.

At times some serious discussions take place. For example, one sixth grader wrote in to complain that his teacher was using illegally copied software. This stimulated a lengthy discussion on the price of software, the propriety of copying it, etc.

One caveat applies, however: the writing on bulletin boards is "written speech." That is, students generally do not edit their writing to be "standard English."

Some students may be poor typists, and their messages may be somewhat difficult to decipher. This provides a fertile ground for discussion with students: How are our perceptions of someone shaped by what they write? Does poor spelling and punctuation make us think that they are either very young or not very smart?

One company has created software to simulate the bulletin board experience and even to provide "electronic mail" on a single terminal. The bulletin board simulation, called "The Electronic Village" by Exsys, provides a good way for students to be initially introduced to the concepts of and working methods of a bulletin board. Another Exsys product, "Electronic Mailbag," is a program that can have up to 100 unique users who can send messages to each other. Ideally, this program could run on a machine in a monitored but open place such as the library or media center. Students and teachers could leave messages for other students. They could also read their own mail. This particular program comes with three difficulty levels, so that the concept can be tried with those as young as fifth grade and as advanced as college students.

Conclusion

Software of many kinds can be useful to writing teachers in helping their students practice and learn to write. Regardless of what software is available in writing labs, none of it will be very effective until it

is integrated meaningfully into student expectations by a concerned writing teacher. This is the main finding of a five-year study by the author of college students' use of computer-based instructional resources in basic language skills. The best book on a library's shelves, by analogy, may contribute little to student learning until students are required to read it by an instructor who integrates the book into his or her course.

Instructor practices that were strongly associated with greater student learning were setting deadlines for completion of the computer-based work, including the computer-based work into grades, monitoring students' online progress and commenting on it, and communicating with students via the computer as well as in the classroom.

Because teachers must be actively involved in the instructional use of computers with their classes, they may not experience a reduction of their workload. They can, however, shift some teaching activities from the routine into more creative tasks, while extending what they can accomplish with their students.

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